FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

March 26 to April 1, 2017 (Week 13)

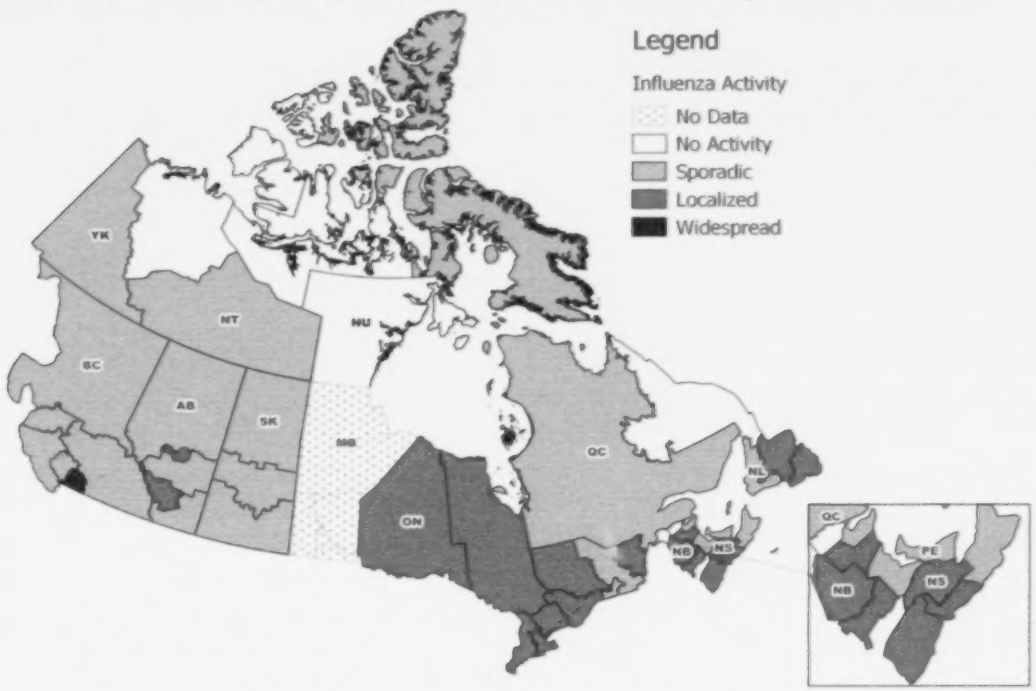
Overall Summary

- Overall, influenza activity is slowly declining in Canada.
- All indicators (laboratory detections, influenza-like illness, outbreaks and hospitalizations) have either decreased or remained similar to the previous week.
- Influenza activity due to influenza B is slowly increasing but is low compared to the same time period in the previous two seasons.
- Influenza A activity is decreasing; however, influenza A continues to be the most common type of influenza affecting Canadians.
- The majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 13, six regions across four provinces and territories reported no influenza or influenza-like illness activity. Sporadic influenza activity was reported in 22 regions across 11 provinces and territories. Localized activity was reported in 19 regions across six provinces. One region in BC reported widespread activity in week 12. For more details on a specific region, click on the map.

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 13

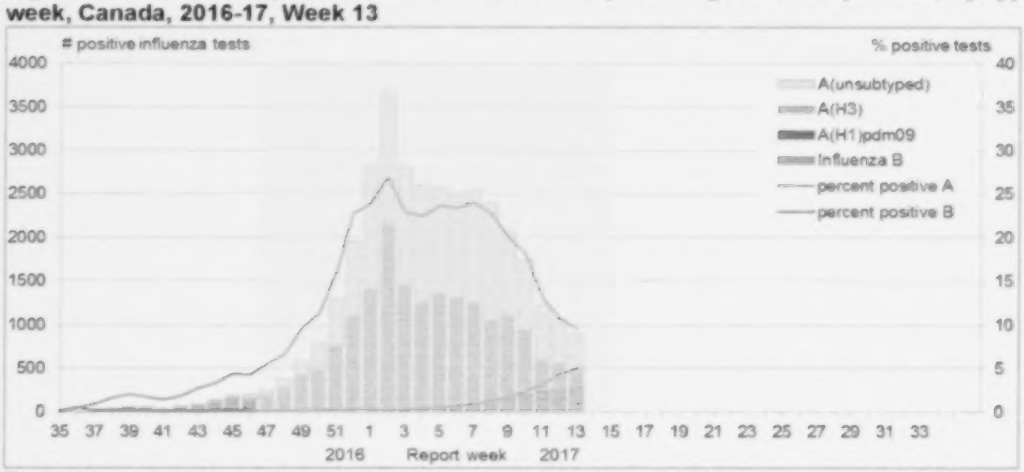


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

In week 13, the number (902) and the percentage of tests positive for influenza (15%) decreased slightly from the previous week. Although declining, influenza A continues to account for the majority (67%) of detections. Influenza B detections have been steadily increasing since mid-February. Influenza B detections remain very low compared to the same time period in the previous two seasons. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

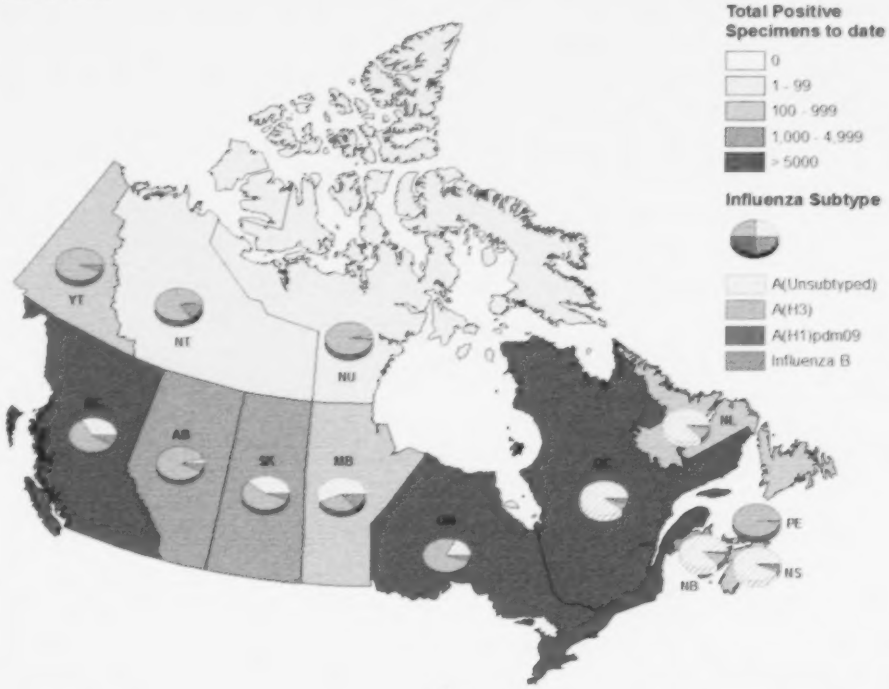
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 13



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

To date this season, 35,129 laboratory confirmed influenza detections have been reported, of which 95% have been influenza A. Influenza A(H3N2) is the most common subtype detected. For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 13



To date, detailed information on age and type/subtype has been received for 24,212 laboratory-confirmed influenza cases (Table 1). Among cases with reported age and type/subtype information, adults aged 65+ accounted for half of the reported influenza cases. Among cases of influenza A(H3N2), adults aged 65+ represented 49% of cases, followed by adults aged 20-64 (34% of cases). Among cases of influenza B, adults aged 20-64 represented 41% of cases.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 13

Age groups (years)	Week (March 26, 2016 to April 1, 2017)					Cumulative (August 28, 2016 to April 1, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	>27	0	<5	27	5	2151	15	813	1323	120	2271	9%
5-19	25	0	6	19	15	2136	10	1059	1067	227	2363	10%
20-44	>35	0	<5	35	15	3321	21	1774	1526	229	3550	15%
45-64	>33	0	<5	33	22	3731	19	1906	1806	304	4035	17%
65+	190	0	19	171	41	11558	9	5310	6239	435	11993	50%
Total	319	0	34	285	98	22897	74	10862	11961	1315	24212	100%
Percentage[2]	76%	0%	11%	89%	24%	95%	0%	47%	52%	5%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
x: Supressed to prevent residual disclosure
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

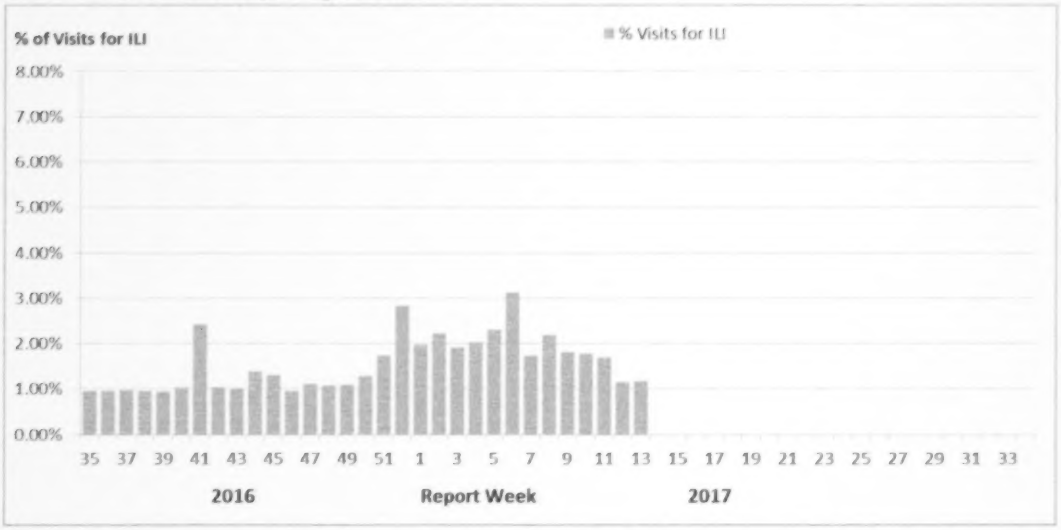
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 13, 1.2% of visits to healthcare professionals were due to influenza-like illness, which is similar to the percentage of visits reported in week 12.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 13: 117



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

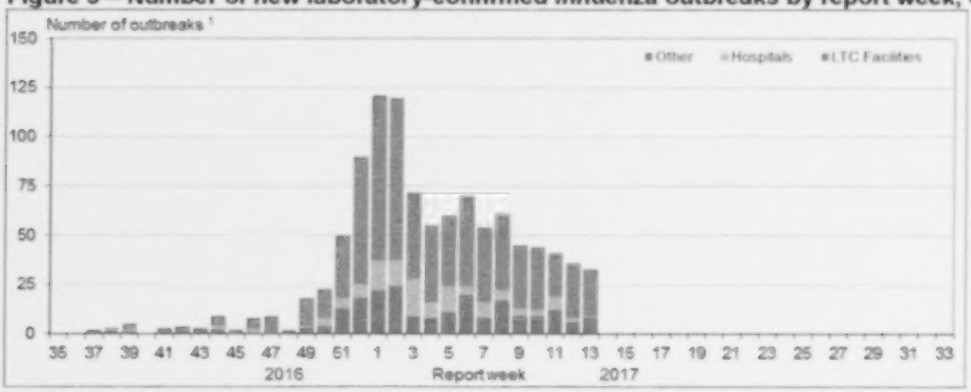
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

In week 13, 33 laboratory confirmed influenza outbreaks were reported (three fewer outbreaks than week 12). The majority of outbreaks (73%) occurred in long-term care (LTC) facilities. Of the outbreaks with known strains or subtypes: three were due to influenza A(H3N2), 8 were due to influenza A(UnS), nine outbreaks were due to influenza B and one outbreak was due to A(H3N2) and B. All but one influenza B outbreak occurred in LTC facilities. An additional two outbreaks due to ILI were reported in schools.

To date this season, 1,063 outbreaks have been reported and the majority (67%) have occurred in LTC facilities. A total of 41 outbreaks (4%) due to influenza B have been reported. Compared to the same period in the most recent previous A(H3N2) predominant season (2014-15), 1,616 outbreaks were reported, of which 74% occurred in LTC facilities and 70 outbreaks (4%) were due to influenza B.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 13



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 13, 142 influenza-associated hospitalizations were reported by participating provinces and territories*, down from 182 reported in the previous week. Influenza A accounted for 73% of hospitalizations. The weekly percentage of influenza B associated hospitalizations has been steadily increasing since week 02. The largest proportion of hospitalizations were among adults aged 65+ years (68%). Five intensive care unit (ICU) admissions and nine deaths were reported in week 13.

To date this season, 5,531 hospitalizations have been reported, of which 96% were due to influenza A. Among cases for which the subtype of influenza A was reported, almost all (2959/2978) were influenza A(H3N2). Adults 65+ accounted for 69% of the hospitalizations. A total of 208 ICU admissions and 303 deaths have been reported. The majority of deaths was reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 13

Age Groups (years)	Cumulative (August 28, 2016 to April 1, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	421	28	449 (8%)	13	6%	<5	x%
5-19	223	31	254 (5%)	14	7%	<5	x%
20-44	279	11	290 (5%)	22	11%	<5	x%
45-64	705	45	750 (14%)	55	26%	33	11%
65+	3647	141	3788 (68%)	104	50%	263	87%
Total	5275	256	5531 (100%)	208	100%	303	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

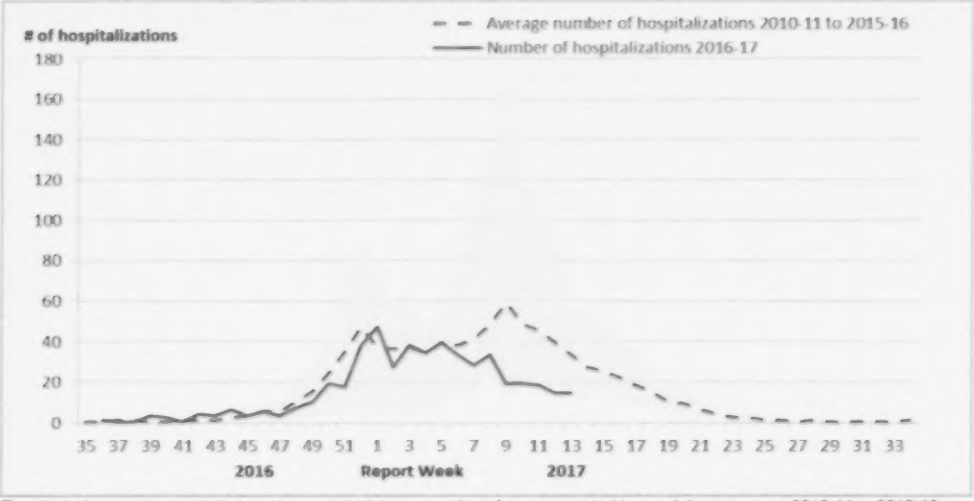
Pediatric Influenza Hospitalizations and Deaths

In week 13, 14 laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, which is similar to the number of cases reported in week 12. Influenza A and B accounted for an equal number of cases. Fifty percent of the hospitalizations in week 13 occurred in children under the age of 2 years. The number of weekly hospitalizations reported since week 05 has been below the six year average for the same time period (Figure 7).

To date this season, 484 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 39% of hospitalizations and influenza A accounted for 89% (n=431) of the reported hospitalizations. Among the 53 hospitalizations due to influenza B, 28 (47%) were in children over the age of 5 years. In comparison, children over the age of 5 years accounted for 33% of influenza A hospitalizations. Additionally, 80 intensive care unit (ICU) admissions have been reported. Children aged 10-16 years accounted for 31% of ICU cases followed by children aged 0-23 months (28%). A total of 56 ICU cases reported at least one underlying condition or comorbidity. Less than five deaths have been reported this season.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 13

Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 13



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

In week 13, 29 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN). Influenza A continues to account for the majority of reported hospitalizations (72%). The majority of cases (83%) occurred in adults aged 65+.

To date this season, 1,339 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. Influenza A accounted for 96% of hospitalizations. Adults aged 65+ accounted for 79% of hospitalizations. To date, 89 intensive care unit (ICU) admissions have been reported. A total of 65 ICU cases reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 69 years. Approximately 59 deaths have been reported this season, the majority in adults aged 65+. The median age of reported deaths was 83 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 13

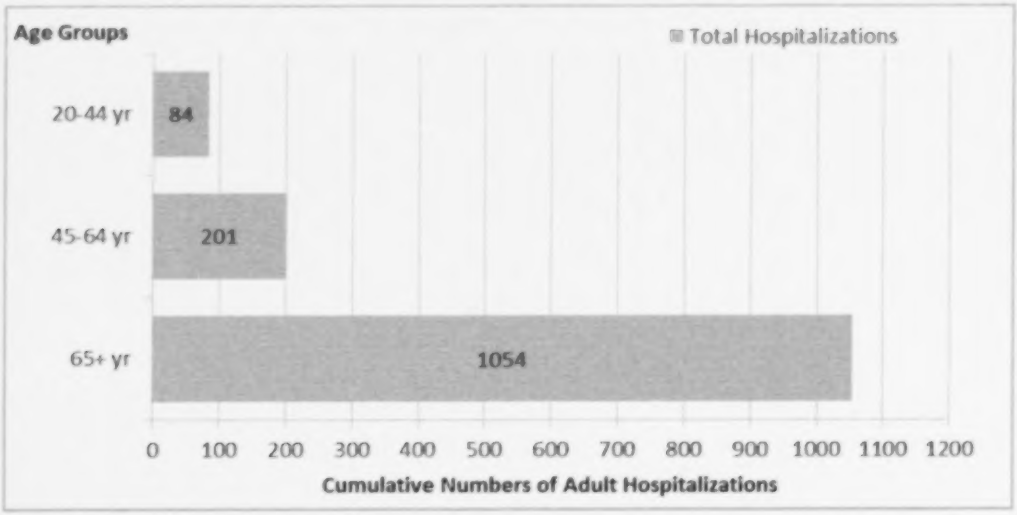
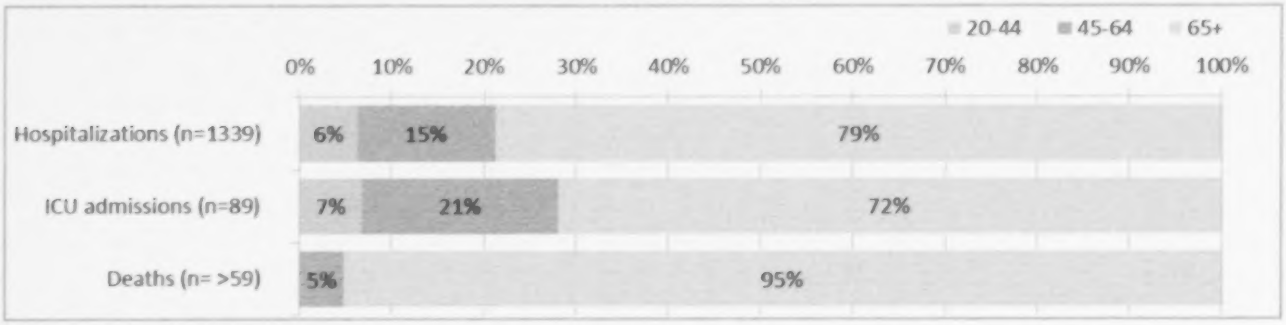


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 13



The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 1,526 influenza viruses [1362 A(H3N2), 35 A(H1N1), 164 influenza B]. All but one influenza A virus (n=1361) and 42 influenza B viruses characterized were antigenically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. One hundred and twenty-two influenza B viruses were similar to the strain which is only included in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 13

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	332	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	994	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, genetic characterization of the 332 influenza A (H3N2) viruses that underwent HI testing determined that 281 viruses belonged to genetic group 3C.2a and 48 viruses belonged to genetic group 3C.3a. Sequencing is pending for the remaining three isolates. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	35	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	42	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	122	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1]The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2]Determined by sequence analysis.
[3]WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.
[4]Detected in epidemiological week 50. For more details, see Week 50 report.

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 837 influenza viruses for resistance to oseltamivir, 836 influenza viruses for resistance to zanamivir and 202 influenza viruses for resistance to amantadine. All but one influenza A(H3N2) virus were sensitive to oseltamivir and all viruses were sensitive to zanamivir. All 187 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 13

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	682	1 (0.1%)	681	0 (0%)	173	173 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	29	0 (0%)	28	0 (0%)	28	28 (100%)
B	125	0 (0%)	126	0 (0%)	NA[1]	NA[1]
TOTAL	837	1 (0.1%)	836	0 (0%)	202	202 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.